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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,653	03/26/2001	Mark E. Duffy	33151 (LD11591)	8792

116 7590 09/05/2003

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EXAMINER
DONG, DALEI

ART UNIT	PAPER NUMBER
2875	

DATE MAILED: 09/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/817,653	Applicant(s) DUFFY ET AL.	
	Examiner Dalei Dong	Art Unit 2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 March 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the tailstock and the headstock of the lathe must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-17 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,810,932 to Ahlgren in view of U.S. Patent No. 5,936,349 to Fukai.

Regarding to claims 1-16, Ahlgren discloses a method of manufacturing a incandescent and metal vapor discharge lamp, "the light source body 10 which has as a relatively heavy wall hollow tube having typical dimensions of 1.4 by 3.2 mm preferably being cut with a laser beam 14, while being held in a headstock 16 of a lathe, at an angle

of about 30.degree. from the axis of the light source body 10. This cutting preferably produces a point portion 10.sub.D on one end and a funnel portion 10.sub.E. The point 10.sub.D helps to guide the light source 10 into the chucks of the glass lathe. The funnel 10.sub.E helps to guide the insertion of parts, to be described hereinafter, used during the formation of the light source of the present invention. The funnel and point portions of the light source body may also be provided by means other than laser cutting such as a glass blowing technique. For such a technique, the related neck portion is first heated, then stretched, then its inner surfaces blown outward and then cut by a torch so as to provide the desired funnel on the one end and contracted on the other end to provide the point portion" (column 6, line 54 to column 7, line 4).

Ahlgren also discloses in Figure 1(d), "the filament assembly 12 is shown in FIG. 1(d) with the first inlead 12.sub. B being first inserted and the loop extension 12.sub. F being the only portion of the filament assembly to remain outside of the first neck portion. The filament assembly 12 is preferably inserted into the first neck portion or inboard end of the light source body 10 just far enough that both foils 12.sub.D and 12.sub.G are within the light source body" (column 7, line 35-42).

Ahlgren further discloses in Figures 1(g) and 1(h), "the flush process is shown in FIG. 1(h) as molding of the mid-portion 10.sub.A of the light source body 10 into a predetermined shape. This predetermined shape may be spherical, elliptical, tubular or any other desired type determined by the parameters of the various lamps to be described. The desired shape is obtained by the preselection of the inner shape of the mold 30" (column 8, line 49-56).

Ahlgren further yet discloses in Figures 1(g) and 1(h), "the mid-portion 10.sub.A is heated to its soften condition after which the mold 30 is brought around the light source body. Simultaneously, a plug 32 is mated into the second neck portion 10.sub.C so as to essentially lock against any escaped argon created by argon 34 (BLOW) being forced into the first neck portion 10.sub.B. The softened mid-portion 10.sub.A is blown out against and takes the shape of the mold 30. Very precise control of the mid-portion 10.sub.A dimensions is achieved by this molding process" (column 8, line 57-67).

Ahlgren further yet discloses in Figure 1(k), "the filament assembly 12 so that the filament 12.sub.A occupies the mid-portion 10.sub.A and the first 12.sub.B and second 12.sub.E inleads, respectively, partially occupy the second 10.sub.C and first 10.sub.B neck portions" (column 9, line 58-62).

Ahlgren further yet discloses in Figure 1(l), "a heating torch 20 is applied, as shown in FIG. 1(l), to region 44 of the neck portion 10.sub.C. In order to drop the pressure and create a pressure difference between the inside and outside of the light source body, e.g., between 50 and 750 torr, which is necessary to collapse the light source body during sealing, commonly termed "shrink sealing " to be described hereinafter with regard to FIGS. 1(m) and 1(n), the second neck portion 10.sub. C beyond the end of the first inlead 12.sub. B is tipped-off. By "tipping-off" it is meant that the quartz is heated until the tube is sealed. Before this tipping-off step, the flush gas is changed from an argon gas to a mixture of an inert gas plus a halogen gas" (column 10, line 1-13).

Ahlgren further yet discloses in Figure 1(m), "the step of sealing the first neck portion 10.sub. B is shown in FIG. 1(m). During such a step, a cooling source 48 is

applied to the mid-portion 10.sub. A of the light source body 10 while at the same time heat, by means of torch 20, is applied to the region 48 related to foil member 12.sub. G. Also, at the same time the pressure in the light source body 10 is reduced (typically 400 torr) by means of a vacuum pump. The cooling source 48 supplies a water mist which is directed onto the mid-portion 10.sub. A so as to prevent heating of the mercury while the first neck portion 10.sub. B is sealed onto the seal member 12.sub. G" (column 10, line 14-24).

Ahlgren further yet discloses "the manner in which the first neck portion 10.sub.B is sealed onto foil member 12.sub.G and also the manner in which the second neck portion is sealed onto seal member 12.sub.D are herein termed "shrink sealing. " If inert pressurization is to be used for the light source body 10, the mid-portion 10.sub. A is chilled with liquid nitrogen so as to condense the inert gas and reduce the pressure well below atmosphere pressure" (column 10, line 25-32).

Ahlgren further yet discloses in Figure 1(n), the "sealing the second neck portion 10.sub. C is shown in FIG. 1(n). The step illustrated in FIG. 1(n) is similar to that described with regard to FIG. 1(m)" (column 10, line 46-48).

Ahlgren finally discloses in Figure 1(p), "the removal of excessive portions of the first and second tubular portions of the light source to form the final product. The extra portions of the light source body covering the outer leads may be removed by a scoring operation conveniently accomplished by means of applying a small diamond cut-off wheel, while the light source body is held by a lathe, to region 54 of the second neck

portion 10.sub.C and to region 56 of the first neck portion 10.sub.B and then the excessive portion of the light source body is snapped-off" (column 11, line 4-14).

However, Ahlgren does not discloses claimed order of seals to different position and reduce the gas pressure within the arc tube body by evacuating the gas. Fukai teaches in Figure 2(b), "the evacuating process (b), the internal pressure of the glass tube 4 is evacuated to a vacuum of 0.5 torr or less by discharging the air within the glass tube 4 using a supply and discharge head 26 after the supply and discharge head 26 has been attached to the opening end portion of the glass tube 4 (or the internal pressure of the glass tube 4 is evacuated once to a vacuum of 0.5 torr or less, and then brought to a low pressure of 760 torr or less by sealing an inert gas into the glass tube 4). Then, in the sealing process (c), the glass tube 4 is sealed with the burners 28 close to the opening end portion with the aforementioned vacuum (or low pressure) condition maintained" (column 4, line 58-67 to column 5, line 1-2).

Fukai also teaches in Figure 2(d), "the heating process (d), with the glass tube 4 chucked at two positions, upper and lower, using chucks 34, the portion surrounding the molybdenum foil 12 of the glass tube 4 is heated with the burners 28. Then, in the pinch sealing process (e), the portion of the glass tube 4 that has been softened by heating is pinch-sealed by pressing such portion in all directions with a pincher 22. In order not to allow the spherical portion 4a to be thermally deformed during heating, not only is a heat shielding plate 36 interposed between the burners 28 and the spherical portion 4a, but also liquid nitrogen is purged from a nozzle 38 arranged below the shielding plate 36 to cool the spherical portion 4a. It may be noted that such cooling by the purging of liquid

nitrogen is not necessary if the shielding effect of the heat shielding plate 36 is adequate" (column 5, line 3-17).

Fukai further teaches "in the starting gas sealing and temporary sealing process (4), after not only the air within the glass tube 4 has been discharged with the supply and discharge head 26 being attached to the opening end portion of the glass tube 4, but also xenon gas has been sealed within the glass tube 4, the glass tube 4 is sealed with the burners 28 close to the opening end portion" (column 31-37).

Fukai further yet teaches "the second pinch sealing process (5), the second electrode assembly unit 6 is pinch-sealed in the glass tube 4. More specifically, the portion surrounding the molybdenum foil 12 of the glass tube 4 is heated using the burners 28 with the glass tube 4 chucked by the chucks 34 at two positions, upper and lower. Then, the portion of the glass tube 4 that has been softened by heating is pinch-sealed by pressing such portion in all directions with the pincher 22. In order not to allow the spherical portion 4a to be thermally deformed during heating operation, not only is the heat shielding plate 36 interposed between the burners 28 and the spherical portion 4a, but also liquid nitrogen is purged from the nozzle 38 arranged below the shielding plate 36 to cool the spherical portion 4a. It may be noted that, unlike in the first pinch sealing process (2), even if the shielding effect of the heat shielding plate 36 is adequate, such cooling by the purging of liquid nitrogen should be used in order to prevent breakage of the glass tube 4 due to expansion of the xenon gas that has been sealed in the glass tube 4" (column 5, line 38-56).

Fukai finally teaches "unnecessary portions on the upper part of the glass tube 4 to which both electrode assembly units 6 have been pinch-sealed in the aforementioned way are cut. As a result, a finished product of the arc tube 2 shown in (6) can be obtained" (column 5, line 58-62).

It would have been obvious to one ordinary skill in the art at the time the invention was made to have manufacture the arc discharge tube of Ahlgren with the sealing order and method of evacuation of Fukai in order to reduce the oxygen concentration and thus reduce oxidation of components of the arc discharge lamp and furthermore, reduce the breakage of the arc discharge lamp during the manurfacturing process.

Regarding to claim 17, Ahlgren discloses it is old and well known in the art to manufacture the light sources using the glass lathe construction method.

Response to Arguments

4. Applicant's arguments filed August 27, 2003 have been fully considered but they are not persuasive.

In response to Applicant's primary argument that Fukai reference does not teach or suggest that the ends of the tube are open initially; Examiner asserts that Ahlgren reference shows a light source body with both ends being open initially and as shown in Figures 1(1) and 1(2) of Fukai reference the glass tube is also open at both ends initially. Further, it is inherent that both ends of the glass tube are open in order to insert the

electrodes and circulate the discharge gas as well as the cleaning gas for the discharge tube. Thus, Examiner asserts that Ahlgren reference and Fukai reference are valid and maintains the rejection.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (703)308-2870. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (703)305-4939. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D.D.
September 2, 2003

Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800